kept at this office. Referring to some earlier records in my possssion I find that in 1867 no rain fell between April 13 and September 14, one hundred and fifty-five days. A moderate disturbance on October 9 appeared off the Oregon coast. Southeast storm warnings were displayed from the Farallones, Point Reyes Light, and northward to Eureka. The wind reached a velocity of 60 miles at Point Reyes Light.—*A. G. McAdie, Professor and District Forecaster.*

PORTLAND, OREG., FORECAST DISTRICT.

The last half of the month was unusually dry. Shipping, both inland and along the coast, experienced considerable inconvenience, on account of fog between the 19th and 27th. During foggy weather, at about 4:30 p. m., October 26, the steamship *South Portland*, from Portland, Oreg., bound for San Francisco, ran on the rocks at Blanco Reef, coast of Oregon, and shortly afterwards sank. The passengers and crew numbered 40, 17 of whom were drowned. Storm warnings were issued on the 3d, 5th, 9th, and 31st and advisory messages for smaller disturbances were sent to selected seaports on the 22d, 28th, and 30th. The most severe storm of the month occurred on the 5th, at which time maximum wind velocities of 72 and 80 miles were reported at North Head and Tatoosh Island, respectively. This disturbance was also severely felt east of the Cascade Mountains, in northern Washington, and along the western slope of the Rocky Mountains in Idaho. Heavy frosts were frequent in eastern Oregon, eastern Washington, and Idaho, but as the staple crops matured the previous month, they did no harm. In western Oregon and western Washington several light frosts were reported, but they were not heavy enough to injure vegetation and at the end of the month late corn and root crops were still green and growing.—*E. A. Beals, Forecast Official.*

RIVERS AND FLOODS.

In connection with low area, No. III, over 10 inches of rain fell at New York, N. Y., during the forty-eight hours ending at 8 a. m. of the 10th, and falls almost as heavy occurred over eastern Pennsylvania and New Jersey. The waters of the Delaware, Passaic, Mohawk, and the tidewater section of the Hudson rose with great rapidity and generally attained unprecedented heights. At Albany, N. Y., during the night of the 9th, the water in the Hudson rose at the rate of a foot an hour. The total amount of the property injured and destroyed was appalling, especially in the Delaware and Passaic river valleys. Along the first-named river from below Easton, Pa., to Trenton, N. J., a distance of something over fifty miles, not a single wagon bridge was left standing. Travel and traffic were interrupted or entirely suspended in the flooded regions, and great loss of life narrowly averted at Paterson, N. J. Along the Mohawk and Hudson rivers the destruction of property was great, but was small as compared with that in the other flooded districts, and much loss and damage were obviated by the timely warnings issued by the Weather Bureau official at Albany, N. Y., as may be seen from the following extract from the Albany Press and Knickerbocker:

The local weather bureau is entitled to considerable credit for its work in connection with the recent flood. On Friday afternoon last the local official noticed that the river was rising, and about 4 o'clock notices were sent out to the merchants along Broadway and other places that at 6 p. m. that day the water would be over the docks, and that by 7 o'clock on Saturday morning a flood stage of about 15 feet would prevail. On Saturday morning at 7:20 o'clock the river was 14.06 feet above mean low water and still rising. A general forecast was sent out that morning stating that the river would begin to fall that evening and that it would continue to go down on Sunday. On Saturday afternoon a special forecast was made and announced that the river would be at its maximum height by 9 o'clock that evening. The river ceased to rise before 8 o'clock and remained at the maximum level until 9 o'clock, when it began to recede and at 8 o'clock on Sunday morning the river was 14.12 feet above the normal and still falling. The local office of the Weather Bureau was open until 9:20 o'clock on Friday evening for the purpose of sending out by telephone messages of warning and answering questions that were asked concerning the rise in the river.

The high water reported in the Mississippi River, above the mouth of the Missouri, during the latter part of the preceding month, passed the flood stage at Hannibal, Mo., on the 4th, inundating the low lands adjacent to that city, and destroying corn and wheat crops valued at $100,000. The maximum stage at Hannibal, 15.8 feet, occurred on the 10th, and exceeded previous October high-water gage records by 4.9 feet. Timely warnings of this flood were issued by the Weather Bureau official at Hannibal. There was but little fluctuation in the waters of the lower Mississippi, a high stage for the season, continuing throughout the month.

The Ohio River was slightly lower than during September, but at no time was navigation interrupted. Changes in the other navigable streams of the country were also of minor importance.

The highest and lowest water, mean stage, and monthly range at 173 river stations are given in Table VII. Hydrographs for typical points on seven principal rivers are shown on Chart V. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock on the Arkansas; and Shreveport, on the Red.—*George E. Hunt, Chief Clerk, Forecast Division.*

AREAS OF HIGH AND LOW PRESSURE.

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocity.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long. W.	Length.	Duration.	Daily.	Hourly.
High areas.		°	°		°	°	*Miles.*	*Days.*	*Miles.*	*Miles.*
I	28, a. m.*	35	120	4, p. m.	46	60	4,275	6.5	658	27.4
II	3, p. m.	37	122	7, p. m.	46	60	3,650	4.0	912	38.0
III	6, p. m.	43	124	10, a. m.	49	86	2,450	3.5	700	29.1
IV	9, p. m.	34	118	16, p. m.	46	60	5,000	7.0	714	29.3
V	14, a. m.	48	124	22, p. m.	46	60	4,800	8.5	565	23.5
VI	19, p. m.	48	124	21. p. m.	37	96	1,925	2.0	962	40.1
VII	21, a. m.	47	123	25, p. m.	29	95	2,450	4.5	544	22.7
VIII	25, a. m.	53	108	38. p. m.	38	80	1,800	3.5	514	21.4
Sums							26,350	39.5	5,569	231.5
Mean of 8 paths							3,294		696	29.0
Mean of 39.5 days									667	27.8
Low areas.										
I	{30, p. m.* / 1, a. m.	51 / 39	120{ / 120}	6, a. m.	46	60	{ 3,325 / 3,675	5.5 / 5.0	604 / 735	25.2 / 30.6
II	5, a. m.	53	122	7, p. m.	48	86	1,825	2.5	730	30.4
III	8. p. m.	35	74	14, p. m.	46	60	1,875	6.0	312	13.0
IV	9, a. m.	48	125	18, p. m.	46	60	5,700	9.5	600	25.0
V	15, a. m.	32	107	17. p. m.	35	76	2,000	2.5	800	33.3
VI	18, p. m.	53	107	21, a. m.	46	60	2,300	2.5	920	38.3
VII	20, p. m.	54	114	23, a. m.	48	68	2.275	2.5	910	37.9
VIII	23, a. m.	20	76	26, a. m.	46	60	2,250	3.0	750	31.2
Sums							25,225	39.0	6,361	264.9
Mean of 9 paths							2,803		707	29.5
Mean of 39.0 days									647	27.0

*September.

For graphic presentation of the movements of these highs and lows see Charts I and II.—*George E. Hunt, Chief Clerk Forecast Division.*